A CASE OF PARTIAL EXCISION OF THE STERNUM ON ACCOUNT OF MELANO-SARCOMA.[1]

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WHILE excision of the sternum on account of caries of tuberculous or syphilitic nature has been done quite frequently, excision on account of malignant growths is so rarely performed that neither surgical text-books nor works on operative surgery mention it. By looking over the literature at my command, I find only two cases mentioned, one by Prof. Koenig, of Göttingen, the other by Dr. Kuster. Koenig's case, described in his "Specielle Chirurgie, II Band, p. 51," was an osteoidchondrome which occupied the whole sternum with the exception of the manubrium and the processus xiphoideus. The operation was performed in the following way: Long, vertical skin incision, after which the costal cartilages were severed on both sides from second rib downwards. Thereafter the sternum was cut through by aid of a saw below the first rib. The sternum, with the tumor attached, was now lifted up with blunt hooks and carefully dissected loose from the mediastinum. During this proceeding both pleural cavities were torn open but the tears were closed by pressure with antiseptic gauze till the skin-flap was in position covering the openings. The tumor was adherent to the pericardium, which was removed with success (?). The patient recovered, but died two years later from relapse in the lung. I have been unable to find the report of Kuster's case, but desire to publish a third

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case which I have lately operated. Mary F., æt. 20 years, born in Ireland, entered the Sisters of Charity Hospital on November 14, 1890, with the following history: She is a domestic, and has been obliged to do a great deal of sweeping, during which the handle of the broom rubbed against her breast bone. She ascribes her complaint, a tumor over the sternum, to this cause. The tumor first appeared eleven months ago, and has been growing larger steadily until now it is the size of half an orange, and extends from below second to below fifth ribs. Four months ago the glands in the right axilla commenced to enlarge and there is now found here a conglomeration of glands as large as two fists, completely filling the whole axilla but yet somewhat movable. Two months ago the glands in the left axilla commenced to swell, and are now as large as a hen's egg. During the last few weeks the glands in both supraclavicular regions have commenced to enlarge. The tumor over the sternum is immovable, presents a feeling of false fluctuation, the skin is normal in color and not adherent. She has sharp, shooting pains radiating from the tumor in different directions; has lately commenced to lose flesh, but is yet in pretty good general health. There are no symptoms of any growth in the anterior mediastinum such as hoarseness, difficulty of breathing or interference with circulation. November 15, 1890, operation under ether-narcosis.

U-formed incision, convex downwards, from second to sixth ribs, about 3 inches wide. The flap was dissected up and the periosteum loosened transversely from the sternum above the tumor in healthy tissue in order to shell out the tumor from the bone, if possible. The tumor was surrounded by a strong, fibrous capsule. On a line of the fourth rib the tumor extended into the sternum, and the capsule was necessarily opened here, and there was a discharge of a semifluid, black, grumous substance. The rest of the tumor was therefore removed from below upwards, by a similar process. The sternum was found quite extensively involved, presenting an irregular cavity as large as a section of a hickory nut, filled with the black, grumous substance. It was thoroughly scraped out with a sharp spoon. During this proceeding, the posterior lamina of the sternum was perforated. The opening was enlarged with chis-

els and from this opening the posterior periosteum was loosened with a curved elevator, and the sternum removed piecemeal with cutting pliers from above the third rib to midway between fifth and sixth ribs. About $^1/_2$ inch of third, fourth and fifth right costal cartilages were removed too, and the pericardium, which appeared healthy, exposed for about 6 square inches. The skin flap was thereafter brought into place, sutured, and a drainage-tube inserted from the lowest point into the cavity left by the removal of the tumor and the sternum. The enlarged glands were thereafter removed from both axillæ and supraclavicular regions, drainage-tubes or catgut drains introduced, sutures inserted and antiseptic dressings applied. The operation lasted two and one-half hours.

The further course was favorable. The temperature rose for a couple of days to 101° in the evening. The respiration was difficult and painful for some time till she learned to use abdominal respiration. The drains were removed on fifth day, and on the tenth day the wounds were healed and the patient allowed to sit up. She left the hospital on the fourteenth day, and so far, ten weeks after the operation, no symptoms of relapse; has gained 12 pounds in weight, and gone to work again as a domestic.

The operation performed differs from the one described by Koenig. He tried to extirpate the sternum in toto, and managed by that proceeding to tear open both pleural cavities. It is scarcely possible to have this accident occur when we first trephine the sternum, and then remove it in pieces with cutting-pliers. I could, with the greatest ease, have removed the whole sternum in this way but stopped, of course, when I met healthy bone-tissue. The tumor, being a melano-sarcoma, will, of course, return, and eventually kill the patient, but if it had been removed half a year earlier, before the glands were enlarged, there might have been better prospects of a permanent result. I was severely criticized by several physicians for attempting the removal, they being of the opinion "that such an operation was little short of murder." In short, the only men who sustained me and advised the removal were Dr. John Cronyn, who sent the patient to me, and Dr. W. H. Heath, both my colleagues in the Sisters' Hospital.

I add the report of the microscopical examination by Dr. W. C. Kraus, lecturer in pathology at the Niagara University:

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The specimen delivered to me by Dr. Mynter was an irregular, unsymmetrical mass of tissue, weighing about one-half to three fourths pounds. The central portion was of a dark brownish color while the borders assumed a pinkish appearance and in consistency soft, save here and there some small, hard, nodular masses which were distinctly tangible. The body of the tumor was encased in a dense, fibrous capsule, which, on opening, contained a thick, dark colored, grumous mass. The small nodules on section presented a pearly white cartilaginous appearance.

Scrapings from the central mass examined under the microscope without staining, showed the presence of small, round, granular cells, with dark-brown pigment bodies.

Small particles from the different regions were hardened in alcohol, imbedded in celloidin, and sections examined with a Zeiss C, No. 2 eye-piece.

The central mass was similar in structure to the scrapings from the fresh specimen, viz., the small, round, granular cells and the dark-brown pigmented bodies, showing it to be unmistakably a melano-sarcoma.

The hard, oval bodies situated in the periphery of the mass presented, in all respects, a cartilaginous appearance and must be regarded as enchondromas. Some of the surrounding tissue which was free from pigment showed predominance of fibrous tissue elements interlaced between small granular cells, and is of the fibro-sarcomatous variety.

The mass, as a whole, is, therefore, in all probability a mixed sarcoma, melanotic, cartilaginous and fibrous tissue being present in great abundance. The bulk, however, is of the melanotic variety, and the tumor may, without hesitation, be termed a melano sarcoma.